ADEQ Arizona Department of Environmental Quality

PUBLIC NOTICE

PROPOSED LEAKING UST (LUST) CASE CLOSURE

The Arizona Department of Environmental Quality (ADEQ) is considering closure of the following leaking underground storage tank (LUST) cases:

LUST Case File #0177.01-.04, .09	**City of Phoenix- Glenrosa Service Center**
Facility ID # 0-003866	**4019 W. Glenrosa Avenue**
Maricopa County	**Phoenix, Arizona 85019**

The City of Phoenix currently owns and operates the Glenrosa Service Center (Northwest Service Center) as a maintenance and refueling facility. The site is located in a mixed commercial and residential area of west central Phoenix. The nearest residential properties are 0.22 miles northeast of the site. The refueling and maintenance area, located near the Service Center building in the central portion of the site, is where past fuel and maintenance fluid LUST systems discharged liquid phase hydrocarbons to the subsurface environment. LUST release 0177.01 was assigned to a pressurized line leak between an unleaded gasoline UST and the product dispenser in May of 1986 when approximately 200,000 to 400,000 gallons of fuel was lost. It is not known how long the leak had occurred. The City removed all of the 14 USTs in September 1990 and installed a new UST system consisting of nine tanks in the same general location. During the replacement activities, eight additional LUST releases were identified and assigned to several of the former USTs. LUST releases 0177.01, .02, .03 and .09 impacted both soil and groundwater. LUST releases 0177.05, .06, .07 and .08 impacted soil only and are not part of this closure request. Those four LUST releases will be closed when additional site investigations are done during the permanent closure of the current UST system, according to the City of Phoenix.

The City and its various consultants have conducted corrective actions at the site since September 1990. Numerous soil borings, monitoring wells and remediation wells have been installed at the site. A *Corrective Action Plan* was submitted in June 2000 and approved in January 2003. The *Site Characterization Report* was approved in December 2010.

Various remedial techniques have been used at the site including dual-phase extraction (pump and treat), free product bailing, skimming, soil vapor extraction (SVE), air sparging (AS) until all remediation ended in February 2014. The amended *Corrective Action Plan* in February 2014 approved monitored natural attenuation (MNA) as the remedial method moving towards case closure.

Only groundwater monitoring well (MW) 41 is contaminated with methyl tert butyl ether (MTBE) at concentrations that exceed applicable Tier 1 Corrective Action Standard of 94 micrograms per liter (µg/L). MTBE was used as an oxygen booster in unleaded gasoline until approximately 2004.

This site is within the Water Quality Assurance Revolving Fund (WQARF) West Central Phoenix- North Plume. Groundwater throughout the site is also contaminated with tetrachloroethylene (PCE) and trichloroethylene (TCE) at concentrations that exceed Aquifer Water Quality Standards (AWQS) over the northern half of the site. In 2017, the F&B Manufacturing Inc. facility SVE system was operated continually except during minor maintenance activities. ADEQ continued enhanced reductive de-chlorination (ERD) injections at the F&B release area. Groundwater sampling was conducted in the vicinity of the injection wells to track remedial progress.

Data provided by AECOM consultant to the City, in the *Corrective Action Completion Report* received July 31, 2018, and all other available site information has been used by ADEQ to determine whether remaining levels of contaminants at the site are adequately protective of human health and the environment. A site specific risk assessment and detailed file/information search were also completed.

Based upon the results of remedial activities and site specific information, the above-referenced LUST site is eligible for alternative LUST closure under Arizona Revised Statutes (A.R.S.) §49-1005(E). Arizona Administrative Code (A.A.C.) R18-12-263.04 allows case closure of a LUST site with groundwater contamination above the Arizona AWQS or Tier 1 Corrective Action Standards. ADEQ has considered the results of a site specific assessment and the rule specific criteria below:

1. Threatened or impacted drinking water wells: According to the Arizona Department of Water Resources (ADWR) records, there are 194 registered wells within ½ mile of the site. Of these registered wells, there are no exempt and four non-exempt wells. The four non-exempt wells are registered to ADEQ as remediation recovery wells. The City of Phoenix has no municipal wells within ½ mile of the site. There are 146 monitoring wells and 42 registered as other. According to the 2011 *City of Phoenix Water Resource Plan,* the City's potable water system encompasses six surface water treatment plants and a network of groundwater wells. Arizona's Assured Water Supply (AWS) Rules became effective in 1995. These Rules require a demonstration of at least 100 years of renewable water supplies for new development. Phoenix's success in water resource planning has led the State of Arizona to grant a "Designation of Assured Water Supply" to the City. This "designation" was recently reconfirmed, and attests that Phoenix maintains sufficient water supplies to serve existing customers and all anticipated growth occurring through the year 2025 (the furthest date considered by the State at this time) for at least 100 years. The City of Phoenix has public water system number AZ0407025. The nearest City well (ADWR #55-626576 or City well #152) is located between ½ and 1 mile to the southwest of the site at 4011 N. 47th Avenue. This well was installed in 1956 and is 630 feet deep. According to ADWR records, this well pumped 473.52 acre-feet in 2015. Any new or replacement well located at or near this site would need to meet the criteria of A.A.C. R12-18-1302 (B) (3).

2. Other exposure pathways: ADEQ sent out a Water Provider Questionnaire (WPQ) to the Salt River Project (SRP), which is attached to this public notice. SRP has two wells located between ½ and 1 mile of the site. The wells have shown chlorinated solvent contamination, but not MTBE or other petroleum related contamination. According to their WPQ, there currently are no known water quality impacts from BTEX (benzene, toluene, ethylbenzene, and total xylenes (including p-, m-, and o- xylene)) or MTBE in wells 8.5E-7.5N (ADWR# 55-608374) and 9.5E-7.7N (ADWR# 55-608381). The most recent samples were taken in 2016/2017 for BTEX and in 2010 for MTBE. All results were below detection level. Historic volatile organic compounds (VOCs) soil contamination was present. After active remediation in 2015, soil sampling was conducted near release area .02 and .09. VOC contamination (benzene and trimethylbenzenes) in the subsurface soil was present between 110 and 140 feet below ground surface (bgs) at concentrations that exceed Soil Remediation Levels (SRLs) likely represent the smear zone. A soil vapor survey was conducted at LUST release locations 0177.01, .02, .03, .04 and .09 and a report submitted in July 2015 to address any vapor intrusion risk from the subsurface soil contamination. Soil vapor samples were analyzed by EPA Method TO-15 for VOCs. Field and laboratory quality assurance/quality control (QA/QC) was acceptable. URS (now AECOM) conducted the risk evaluation by using the on-line screening version of the Johnson & Ettinger model using both site-specific and default parameters under a residential land-use scenario. A cumulative cancer risk (ELCR) and a non-cancer hazard index (HI) value was calculated. The ELCR and the HI for each of these LUST release areas represented acceptable risk since they were below the target thresholds of E-06 and

1.0, respectively. AECOM evaluated the inhalation risk from the MTBE contamination in groundwater at MW-41. An ELCR and HI values was calculated. The ELCR and the HI represented acceptable risk since they were below the target thresholds of E-06 and 1.0, respectively. Incidental dermal contact and ingestion of the groundwater is considered *de minimis* risk since this water is not used a potable water. In a ¼ mile land use/receptor survey, there are no schools, day care centers, hospitals or other sensitive populations.

3. *Groundwater plume stability*: Groundwater elevations have steadily declined likely due to ongoing drought conditions. Site wells are completed at various depths, however the screened interval is between 80 and 200 feet bgs. MW-41 was installed in December 2004 and is screened between 80 and 180 feet bgs which is the depth of the borehole. Wells completed to a depth of less than 140 fee bgs, have gone dry. The average depth to groundwater beneath the site ranged from 145 to 152 feet bgs in March 2018 and the hydraulic gradient is to the west and southwest at the southern side of the site where MW-41 is located. The hydraulic gradient is to the northwest and west at the northern side of the site. This groundwater mounding pattern has been observed since 2002. The reason for the mounding has not been determined but is likely due to localized groundwater recharge. Historical plume extent maps dated 2003, 2008, and 2013) show that the extent of liquid petroleum hydrocarbons (LPH) and dissolved phase contamination has continued to shrink. LPH was last observed in ASW-19 in June 2013. AECOM conducted a trend analysis for MTBE concentrations in MW-41 and eight other monitoring wells using the GSI Mann-Kendall Toolkit for Constituent Trend Analysis. The summary of the MTBE analysis indicate a statistically significant downward or stable trend in 14 of the 15 wells. One well (MW-38) indicated a probable increasing trend, but the groundwater data collected from this well indicates that the MTBE concentration has only exceeded 94 µg/L once in January 2013, of all of the 11 sampling events evaluated. MTBE has ranged between 22 and 72 µg/L in MW-38. A down gradient well (MW-46) has not had any MTBE reported over laboratory reporting limits with the exception of one detection in 2015 of 0.41 µg/L. Groundwater plume stability is also demonstrated by the remaining VOC contamination present over a Tier 1 Corrective Action Standard is limited to monitoring well MW-41 and only MTBE contamination remains at 119 µg/L, which exceeds the Tier 1 Corrective Action Standard. AECOM also evaluated plume stability using BioScreen. The model predicts no impacts of MTBE at concentrations over 94 µg/L in down gradient well MW-46 throughout the modeled time frame of 5 years in the various scenarios. The instantaneous reaction model predicts the concentration of MTBE at and over 40 feet from MW-41 will be 0 µg/L throughout the modeled time frame of 5 years and at MW-41 in 4 years. This data supports that the contaminant plume will continue to shrink over time.

4 *Characterization of the groundwater plume:* Based on current and previous groundwater monitoring events, groundwater concentrations for benzene have not exceeded AWQS since April 2015. Other petroleum related contamination concentrations have remained below AWQS since April 2016. Groundwater analytical results during the March 2018 event indicate concentrations remain below applicable AWQS and only MW-41 out of 15 monitoring wells sampled exhibited MTBE contamination present over an applicable standard. The highest MTBE concentration in MW-41 was 200 µg/L in March 2017.

5. *Natural Attenuation*: Natural attenuation processes include diffusion, dispersion, sorption, volatilization, and biodegradation. A decreasing trend in chemical concentrations in groundwater has been established, which supports natural attenuation is occurring. Hydrologic and geochemical data can be used to indirectly demonstrate the type(s) of natural attenuation processes. Monitored natural attenuation (MNA) parameters were collected during the March 2018 groundwater monitoring event. Low dissolved oxygen (DO) concentrations are generally located in areas where significant concentrations of dissolved

petroleum contamination and/or free product were historically present. Low DO concentrations are consistent with the use of oxygen by microbes to aerobically degrade dissolve hydrocarbons. High DO concentrations are generally located outside of the inferred dissolved phase extent of the contamination, near the property boundaries, or in close proximity to air sparge wells. Elevated DO concentrations in these wells may indicate microbial growth has slowed and the consumption of oxygen has decreased since the contamination source (food source for the microbes) has decreased. Geochemical results for some of the wells including MW-41 indicates that nitrate is being depleted in the groundwater at the wells with the highest MTBE concentrations (23 and 119 µg/L) indicating that the nitrate are being used as electron acceptors during anaerobic degradation of the hydrocarbons. Manganese, iron and sulfate can also be used by microbes to anaerobically biodegrade contamination. However, these concentrations were inconclusive since the concentrations did not directly correspond to the MTBE concentrations. High concentrations of methane (11.8 and 321 µg/L) in the wells including MW-41 are consistent with the use of carbon dioxide by microbes to anaerobically degraded dissolved hydrocarbons (methanogenesis).

6. *Removal or control of the source of contamination*. Source control has been completed by the UST system being permanently closed in 1990. Several remedial methods also were used to remove the source between 1987 and 2014: free product removal; groundwater pump and treat; SVE from December 1992 until February 2014; AS from March 2007 to February 2014 and biosparging from July 2014 to Oct 2014 in two specific wells. Approximately 221,113 pounds of vapor-phase petroleum hydrocarbons has been removed from the contaminated subsurface at the site by SVE and AS activities.

7. *Requirements of A.R.S. §49-1005(D) and (E):* The results of the corrective action completed at the site assure protection of public health, welfare and the environment, to the extent practicable, the clean-up activities competed at this site allow for the maximum beneficial use of the site, while being reasonable, necessary and cost effective.

8. *Other information that is pertinent to the LUST case closure approval*: The facility and LUST files were reviewed for information regarding prior cleanup activities, prior site uses and operational history of the UST system prior to removal.

Groundwater data for MW-41

Date	**MTBE Tier 1 Corrective Action Standard is 94 µg/L**	**Depth to water (ft.)**
September 2005	<1	137.26
September 2006	<2	138.63
September 2007	<2	139.56
September 2008	4.4	139.67
March 2009	**110**	140.04
September 2009	11	140.42
December 2009	19	140.42
March 2010	16	140.59
September 2010	21.3	140.10
September 2011	10.2	139.68
March 2012	<2.0	140.68
August 2012	11.1	141.08

March 2013	<5.0	141.45
September 2013	2.5	141.95
February 2014 remediation ends	---	---
March 2014	13	142.54
October 2014	**130**	143.34 (9/2014)
January 2015	**120**	143.51 (12/2014)
March 2015* annual monitoring schedule start	**170**	143.94
March 2016	59	144.95
March 2017	**200**	145.66
March 2018	**119**	146.76

Site specific information concerning this closure is available for review during normal business hours at the ADEQ Records Center http://www.azdeq.gov/function/assistance/records.html , 1110 W. Washington St., Suite 140, Phoenix, AZ 85007. ADEQ welcomes comments on the proposed LUST case closure. Please call the Records Center at 602-771-4380 to schedule an appointment. A 30-day public comment period is in effect commencing **October 23, 2018 and ending November 23, 2018**. Comments may be submitted by mail or email. Written comments should be sent to:

Arizona Department of Environmental Quality
Waste Programs Division
Attn: Debi Goodwin
1110 W. Washington Street
Phoenix, AZ 85007

or electronically mailed to: dg1@azdeq.gov.

If sufficient public interest is demonstrated during the public comment period, ADEQ may announce and hold a public meeting. ADEQ will consider all submitted comments and reserves the right to respond to those comments following the public comment period. For more information on this notice, please contact the Sr. Risk Assessor, Debi Goodwin at (602) 771-4453 or at dg1@azdeq.gov.

Copies of the cited statutes and rules can be found at:
http://www.azleg.gov/ArizonaRevisedStatutes.asp?Title=49, and
http://www.azsos.gov/public_services/Title_18/18-12.htm

ADEQ will take reasonable measures to provide access to department services to individuals with limited ability to speak, write or understand English and/or to those with disabilities. Requests for language interpretation, ASL interpretation, CART captioning services or disability accommodations must be made at least 48 hours in advance by contacting Ian Bingham, Title VI Nondiscrimination Coordinator at 602-771-4322 or Bingham.Ian@azdeq.gov. Teleprinter services are available by calling 7-1-1 at least 48 hours in advance to make necessary arrangements.

ADEQ tomará las medidas razonables para proveer acceso a los servicios del departamento a personas con capacidad limitada para hablar, escribir o entender inglés y / o para personas con discapacidades. Las solicitudes de servicios de interpretación de idiomas, interpretación ASL, subtitulados de CART, o adaptaciones por discapacidad deben realizarse con al menos 48 horas de anticipación contactando a Ian Bingham, Coordinador de Anti-Discriminación del Título VI al 602-771-4322 o Bingham.Ian@azdeq.gov. Los servicios de teleimpresores están disponibles llamando al 7-1-1 con al menos 48 horas de anticipación para hacer los arreglos necesarios.

AECOM

HYDROCARBON CONCENTRATIONS AND FREE PRODUCT EXTENT - MARCH 2018

City of Phoenix - Glenrosa Service Center

May 2018

Figure 4

Document Path: P:\Projects\City_of_Phoenix\60589985_Glenrosa1\600_CAD_GIS\620_629_GIS_Graphics\mxd\Fig4_HydrocarbonConcentrations.mxd (BDL)

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Figure 3

Water level Upper MAU
West Central Phoenix
North Plume
WQARF Site 2018

Legend

- Wells that are dry or not located
- Sampled wells
- F&B Manufacturing Facility
- 975 — Water level contours 1 ft interval Measured in February 2018
- 976 — Water level contours 1 ft interval depression Measured in February 2018

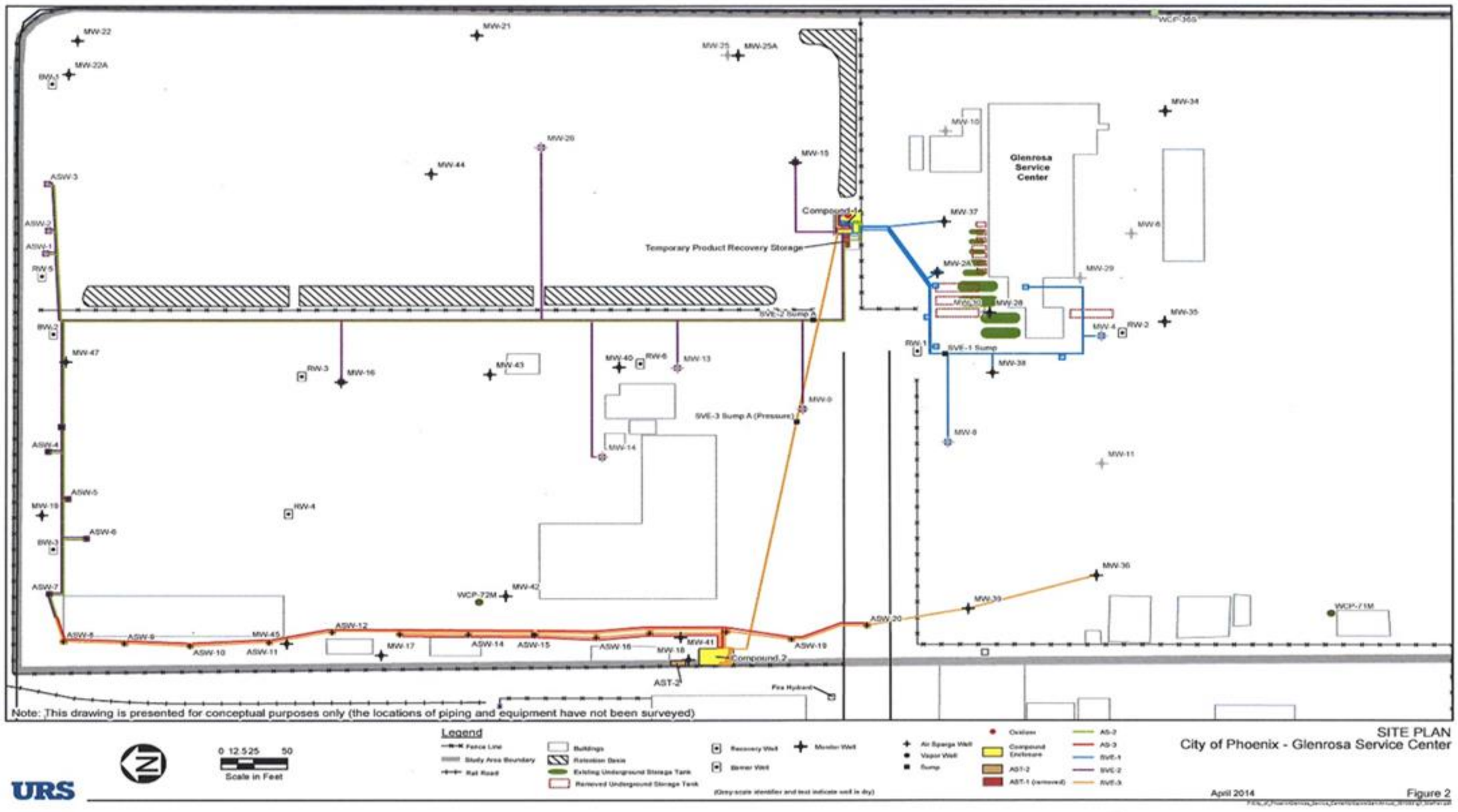
Elevation (ft) Above Mean Sea Level (AMSL)

100ft 200ft 400ft

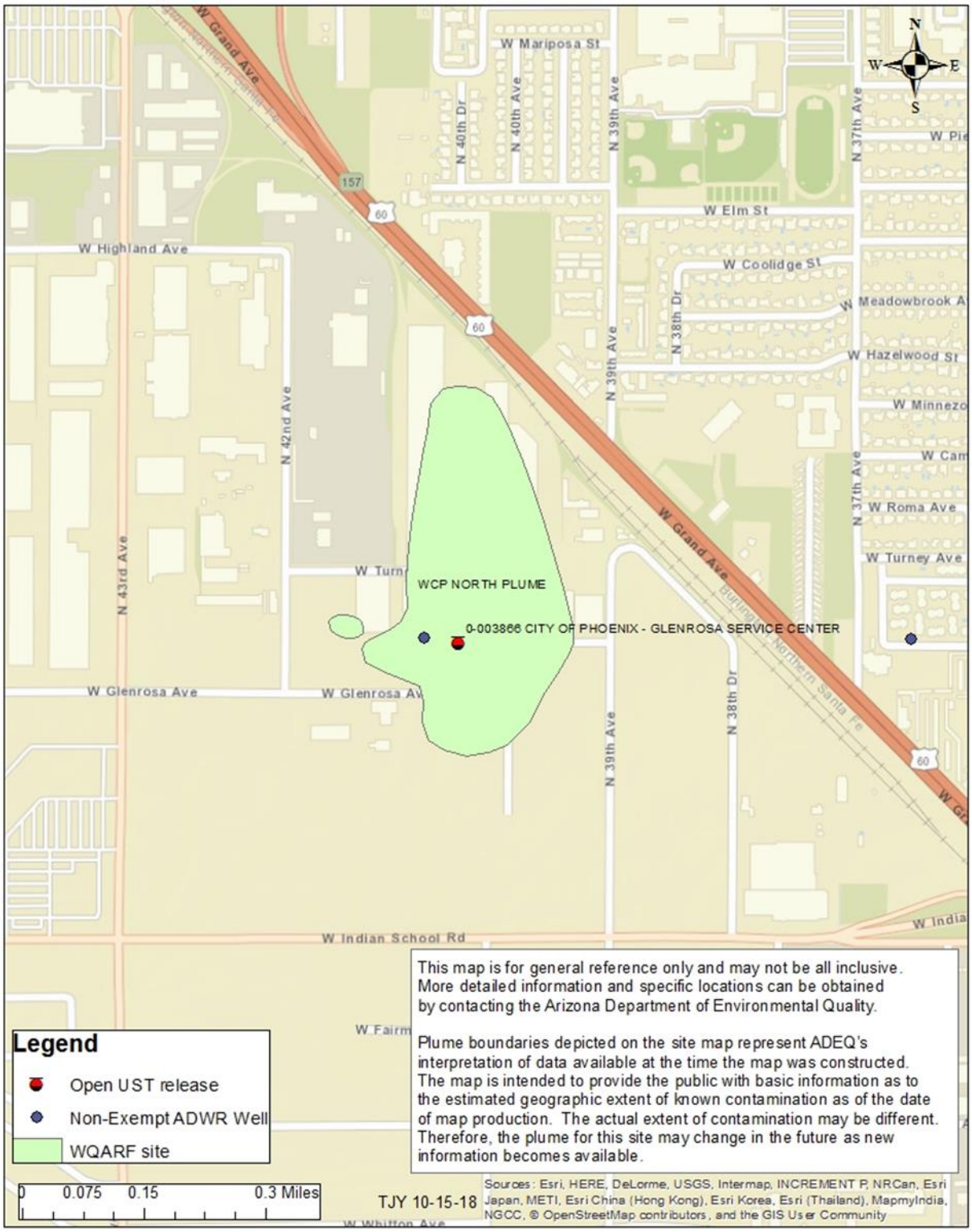
North

CALIBRE Matrix DESIGN GROUP

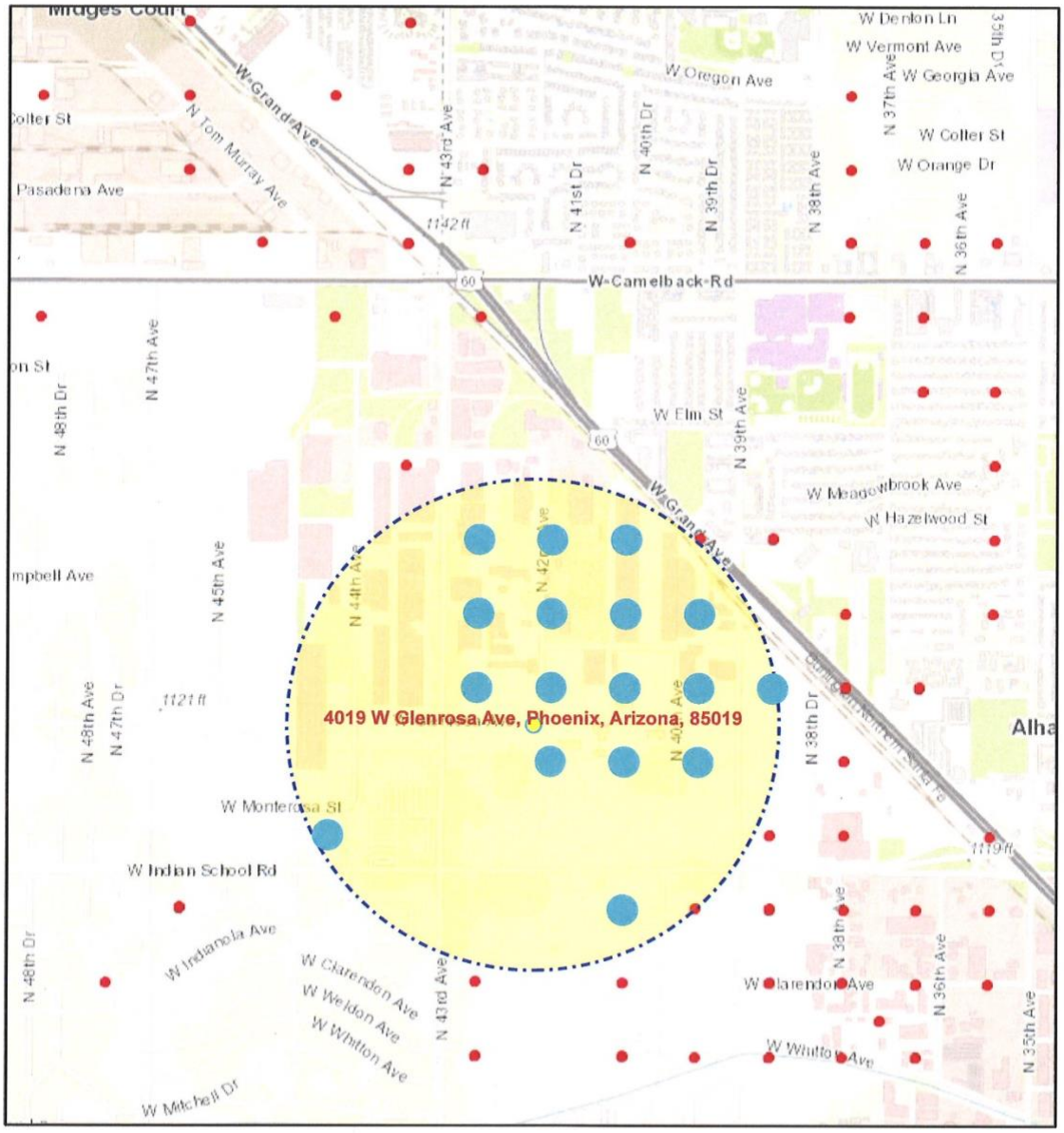
ADEQ Arizona Department of Environmental Quality


MW-22
MW-22A
MW-21
MW-25
MW-25A
BW-1
MW-20
MW-44
MW-15
Compound 1
Temporary Product Recovery Storage
ASW-3
ASW-2
ASW-1
RW-5
BW-2
MW-47
RW-3
MW-16
MW-43
MW-40
RW-6
MW-13
SVE-2 Sump
MW-0
SVE-3 Sump A (Pressure)
MW-14
ASW-4
ASW-5
MW-19
RW-4
BW-3
ASW-6
ASW-7
WCP-72M
MW-42
ASW-8
ASW-9
ASW-10
MW-45
ASW-11
ASW-12
MW-17
ASW-14
ASW-15
ASW-16
MW-18
MW-41
Compound 2
AST-2
Fire Hydrant
ASW-19
ASW-20
MW-39
MW-36
WCP-71M
MW-10
Glenrosa Service Center
MW-34
MW-37
MW-6
MW-24
MW-29
MW-30
MW-28
MW-4
RW-2
MW-35
RW-1
SVE-1 Sump
MW-38
MW-8
MW-11
Note: This drawing is presented for conceptual purposes only (the locations of piping and equipment have not been surveyed)
Legend
Fence Line
Study Area Boundary
Rail Road
Buildings
Retention Basin
Existing Underground Storage Tank
Removed Underground Storage Tank
Recovery Well
Monitor Well
Blower Well
Air Sparge Well
Vapor Well
Sump
Oxidizer
Compound Enclosure
AST-2
AST-1 (removed)
AS-2
AS-3
SVE-1
SVE-2
SVE-3
(Grey-scale stendiles and text indicate well is dry)
0 12.525 50
Scale in Feet
URS
SITE PLAN
City of Phoenix - Glenrosa Service Center
April 2014
Figure 2

Leaking USTs and Wells in WQARF Plumes - WCP North Plume



Glenrosa Service Center



October 1, 2018

1:18,056

0 0.13 0.25 0.5 mi

0 0.2 0.4 0.8 km

Arizona Department of Water Resources, Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap contributors, and the GIS

Arizona Department of Water Resources

ADEQ Arizona Department of Environmental Quality

ADEQ Arizona Department of Environmental Quality

Email completed form to: dq1@azdeq.gov

UST- LUST Section

GROUNDWATER USE QUESTIONNAIRE

LUST FACILITY NAME Glenrosa Service Center

ADDRESS 4019 W. Glenrosa Ave., Phoenix 85019

LUST FACIITY ID 0-003866

LUST CASE NO 0177.01-.04, .09

Please answer all questions. Mark "UNK" if the answer is unknown to you at the time of completion. Please attach any additional pages as needed.

Water user municipality/utility name: Salt River Project

Date Questionnaire was completed: September 19, 2018

Contact Name: Karis Nelson

Title: Senior Environmental Scientist

Address: Environmental Compliance and Permitting

PAB 359, P.O. Box 52025, Phoenix, AZ 85072

Phone Number: 602-236-2916

Email address: karis.nelson@srpnet.com

1. Please indicate current or near future anticipated groundwater development by the municipality/utility within 1 mile of the above named LUST site.

   SRP operates water conveyance structures and groundwater supply wells within a 1-mile radius of the LUST site. SRP wells within the 1-mile radius include 8.5E-7.5N (ADWR# 55-608374) and 9.5E-7.7N (ADWR# 55-608381). The SRP wells produce water for SRP shareholder use.

For the reasonably foreseeable future groundwater development, please see the response to question #2, below.

2. What is the future use (up to 100 years) for groundwater within 1 mile of the above named LUST site?

SRP anticipates that all of the properties near the subject area, including the groundwater supply wells and the conveyance structures, will remain in use over the next 100 years. Additionally, water from the supply wells in the vicinity could be included in the raw drinking water supply for the City of Goodyear (Goodyear), once the future Goodyear water treatment plant starts treating its raw water delivered by SRP.

SRP entered into an Agreement with Goodyear in 2017 to wheel Goodyear's surface water supplies through the SRP water delivery system to the future Goodyear water treatment plant. Although the water delivered to Goodyear will primarily be Goodyear's surface water supplies (i.e., entitlement of Central Arizona Project water), from an operational perspective some of that water may physically be comingled with water from groundwater wells that discharge from in and around the site.

3. Is the municipality/utility currently sampling groundwater wells within 1 mile of the above named LUST site? If so, how often is the sampling conducted? Are analytical results being submitted electronically to ADEQ's the groundwater database? If not, will you share the data with ADEQ?

SRP conducts routine groundwater sampling of its wells. Water quality records are submitted electronically to the ADEQ groundwater database.

4. Are there any groundwater wells owned by the water provider that are known to have been affected by the above named LUST site? If so, please list the ADWR well identification numbers. What is the current status of these wells (e.g.- shut down, still pumping)?

Based upon recent testing results, there currently are no known water quality impacts from BTEX (benzene, toluene, ethylbenzene, and total xylenes (including p-, m-, and o-xylene)) or Methyl-Tert-Butyl-Ether (MTBE) in wells 8.5E-7.5N (ADWR# 55-608374) and 9.5E-7.7N (ADWR# 55-608381). The most recent samples were taken in 2016/2017 and in 2010 for MTBE. All results were below detection level.

However, the water quality in wells 8.5E-7.5N and 9.5E-7.7N is affected by trichloroethylene (TCE) and tetrachloroethylene (PCE) contamination. In September 2016, TCE and PCE concentrations for SRP well 8.5E-7.5N were 1.7 µg/L and 0.8 µg/L,

respectively. In May 2017, TCE and PCE concentrations for SRP well 9.5E-7.7N were 9.5 µg/L and 4.5 µg/L, respectively.

The status of wells 8.5E-7.5N (ADWR# 55-608374) and 9.5E-7.7N (ADWR# 55-608381) is "Active."

5. What is the future use (up to 100 years) for any wells that have been impacted by the above named LUST site?

   Please see above responses to questions #2 and #4.

6. Is there any other information you wish to provide to assist ADEQ in the LUST case closure evaluation of this site?

   SRP's water supply wells are a critical resource, especially in drought conditions, and it is very important that SRP has a reliable supply of water to meet customer and shareholder needs.